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## INTRODUCTION

It is widely acknowledged that there has been a substantial increase in the trading by large institutional inveators and an increase in the proportion of total trading done by the institutions. This is documented in a number of studies [1, 2, 3, 6, 10, 18, 21]. This increase has caused concern for many observors who feel that trading by institutions leads to increases in the variability of stock prices either because they trade large blocks of stock or because it is contended that institutions tend to trade together [1, 5, 11, 12, 13]. Unfortunately, there is very little direct empirical evidence on this important question of the relationship between trading by inatitutions and stock price volatility. Moreover, the prevailing ad hoc belief on Wall Street is that there is a positive relationship between institutional trading and aggregate stock price volatility. This belief prevails even though studies on the specific effect of block trades on the price of the specific stocks have generally indicated that there is not a significant liquidity cost involved in block trades [7, 8, 14, 16, 17]. Further, another study indicated that institutions do not trade together [9]. Apparently there is a very real divergence between the prevailing belief on Wall Street and indirect empirical evidence. Because of such a divergence, this paper is concerned with a direct analysis

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of the relationship between institutional transactions and stock price volatility during the past 12 years. Although further analysis is hindered by the lack of data, this analysis for the recent period should provide some insights into the influence of institutional trading on stock price volatility.

The initial section contains a description of the data and the tests employed. The subsequent section sets forth the results and discusses them in terms of the prevailing belief that there is a positive relationship between institutional trading activity and aggregate stock price volatility. The paper ends with a summary and conclusion that considers the implications of these results for those who advocate legislation for the institutions.

## DATA AND ANALYSIS

### Institutional Trading Data

It appears that a major reason for the lack of analysis of the relationship between institutional trading and stock price volatility is the difficulty of finding a series that indicates institutional trading activity during reasonable time intervals for a long period. The series employed in the current study is, "Stock Transactions of Major Financial Institutions" (referred to as Inst. P & S). The source of the data is the Securities and Exchange Commission. The financial institutions included are: (1) non-insured private pension funds, (2) open-end investment companies, (3) life insurance companies, and (4) fire and casualty companies. The data are reported quarterly and are derived from the SEC "Statistical Bulletin" for the period from the beginning of 1964 through the second quarter of 1975 (46 quarters). There are also annual figures for the 13 years, 1962-74.

In addition to examining the absolute level of purchases and sales, a relative measure of institutional activity was considered. Specifically, the purchases and sales by institutions was compared to the total dollar value of stock volume on United States Securities Exchanges during the quarter (this figure encompasses all round-lot sales and odd-lot sales of customers and dealers). It is likewise contained in the Statistical Bulletin on a monthly basis for the test period. Therefore, the relative measure used is the total purchases and sales by institutions for each quarter divided by the total stock volume for the quarter on U. S. stock exchanges. Some observors may prefer an adjustment to the total volume figure because the institutional transaction figure includes purchases and sales. Notably, if both series are consistent over time the only change would be a matter of scale.

Stock Price Volatility

The stock price series used is the Standard and Poor's Composite Index of 500 stocks. This series was considered appropriate because it includes a large cross section of stocks listed on the New York Stock Exchange. This segment of the total market seemed appropriate since the bulk of institutional trading takes place on the NYSE and, therefore, if there is an effect it should show up in these figures. Three measures of stock price volatility were considered:

1. Percent change in stock prices during the period. Specifically, the percent change from the close on the last day of period t-1 to the close on the last day of period t.

$$Cl_{(t)} - Cl_{(t-1)}/Cl_{(t-1)}$$

This variable is referred to as PC S & P.

2. The absolute value of the percent change in stock prices. This is the same as the first measure except that it ignores the sign of the change and only considers the size of the change. This variable is referred to as Abs. PC.

3. The difference between the high closing price during the period and the low closing price during the period, divided by the low price.

High Price - Low Price/Low Price

This variable is referred to as Hi-Lo.

A summary of the data used is as follows:

Inst. P & S----------the dollar value of stock purchases and sales by major financial institutions.

T. Stk. Vol.---------the total dollar value of stock volume on United States Securities Exchanges.

Perc. Inst. Tr.------institutional purchases and sales as a percent of total dollar volume.

PC S & P------------percent change in S & P 500 Index during the period.

Abs. PC--------------the absolute value of the percent change in the S & P 500 Index during the period.

Hi-Lo----------------the difference between the high closing price and the low closing price during the period, divided by the low closing price.

Analysis of Relationship

The analysis involved an examination of the correlations among the measures of institutional trading activity and the measures of stock price volatility. Those who hypothesize that institutional trading activity contributes toward an increase in stock price volatility would expect significant positive correlations between the alternative measures.

## PRESENTATION OF RESULTS

### Data Description

Table 1 contains the basic descriptive statistics for the quarterly and annual data. Both the quarterly and annual figures indicate a wide range of values for all the series involved. A very important variable regarding institutional activity is institutional purchases and sales, as a percent of total trading volume. The quarterly data for this variable ranged from a low of about 23 percent (in 1965), to a high of about 56 percent (in 1970). Regarding stock price volatility, the absolute percent change figures for the quarterly data ranged froma lmost no change (.001) to a 26 percent change. There does not seem to be any secular pattern in the changes based upon an analysis of the time series. The range of hi-lo changes is larger for annual changes as one might expect.

The point is, there is a significant range of values for all the variables involved which indicates that significant relationships between the variables can be derived if the relationships exist.

### Correlation Results

The correlations among the quarterly trading variables (Inst. P & S; Total Stock Volume; and Percent Inst. Trading) all were positive and statistically significant. In contrast, the relationship between institutional trading (either absolute or as a percent of total volume) and the alternative measures of stock price volatility were generally either positive and insignificant or negative and insignificant. The only exception was the correlation between the percent of institutional trading variable and the hi-lo volatility measure. This correlation of .28 is singificant at the .05 level.

The correlations with the annual observations were consistent with the quarterly data results. The correlations among the alternative trading variables were large positive values and significant. Again, the correlations between the institutional trading variables and the volatility measures did not support the folklore. Specifically, all the correlations between institutional purchases and sales and the three price volatility measures were negative but insignificant. Further, two of the three correlations with percent of institutional trading were also negative but insignificant. The only positive correlation was with hi-lo volatility and it was insignificant. Notably, the largest correlation was a negative value (-.250) between percent of institutional trading and percent change in the price index. While none of the correlations were statistically significant (with the number of observations the correlations had to be about .50 to be significant), it is notable that five of the six correlations were negative. It is certainly difficult to infer from this any support for the belief that there is a positive relationship between institutional trading and stock price volatility.

## SUMMARY AND CONCLUSION

### Summary

The purpose of this study was to analyze a question that has received a lot of attention in terms of rhetoric, but not much empirical analysis. While many observors on Wall Street seem to think there is a significant positive relationship between institutional trading activity and stock price volatility, the direct empirical evidence to support such a contention is almost completely lacking. This study attempted to fill this empirical gap by examining the relationship between several measures of institutional

trading and alternative measures of stock price volatility.

An examination of the raw data revealed a substantial range of values for almost all the variables involved. Such a range would indicate that if there is a relationship between the variables, it should be shown by the correlations. The correlation results using quarterly and annual data were fairly consistent. Regarding the main question of the study, with one exception all the correlations berween measures of institutional trading and measures of stock price volatility were either insignificant and negative or insignificant and positive. The lon exception was a small but significant positive correlation between the percent of the trading by institutions and hi-lo volatility.

Conclusion

Based upon these results, one certainly cannot infer support for the belief that institutional trading has caused an increase in stock price volatility. Probably the most obvious conclusion is that there is no significant relationship between trading by institutions and stock price volatility. This is very similar to the conclusion derived from a study that examined the relationship between block trades and stock price volatility [16].

While a great deal more can be done on the question of the effect of institutional trading, these results derived from a direct examination of the relationship between institutional trading and stock price volatility certainly do not lend much support to the Wall Street folklore that contends that institutional trading has caused an increase in stock price volatility. Therefore, before we propose drastic legislation to inhibit trading by institutions and generally constrain the functioning of our

capital markets in order to reduce stock price volatility, we should be certain that we have identified the cause of the problem. The bulk of emprical evidence to this point does not indicate that the institutions are the cause.

TABLE 1

DESCRIPTIVE DATA FOR VARIABLES-
QUARTERLY AND ANNUAL OBSERVATIONS

Quarterly Data (1/64 - 2/75)

| | Mean | Std. Dev. | Max. | Min. |
|---|---|---|---|---|
| Inst. P & S | 15.31 | 6.96 | 26.89 | 4.30 |
| T. Stk. Vol. | 37.32 | 11.32 | 56.83 | 16.83 |
| Perc. Inst. Tr. | .395 | .106 | .565 | .231 |
| PC S & P | .007 | .083 | .216 | -.261 |
| Abs. PC | .061 | .057 | .261 | .001 |
| Hi-Lo | .106 | .060 | .354 | .030 |

Annual Data (1962 - 1974)

| | Mean | Std. Dev. | Max. | Min. |
|---|---|---|---|---|
| Inst. P & S | 53.33 | 31.16 | 99.71 | 12.56 |
| T. Stk. Vol. | 135.62 | 52.43 | 204.02 | 54.73 |
| Perc. Inst. Tr. | .365 | .116 | .522 | .230 |
| PC S & P | .009 | .159 | .201 | -.297 |
| Abs. PC | .137 | .071 | .297 | .001 |
| Hi-Lo | .258 | .128 | .602 | .135 |

TABLE 2

CORRELATIONS AMONG MEASURES OF INSTITUTIONAL TRADING AND MEASURES OF STOCK PRICE VOLATILITY

Quarterly Data

| | Inst. P & S | T. Stk. Volume | Perc. Inst. Trading | PC S & P | Abs. PC | Hi-Lo |
|---|---|---|---|---|---|---|
| Inst. P & S | --- | | | | | |
| T. Stk. Volume | .875 | --- | | | | |
| Perc. Inst. Trading | .845 | .512 | --- | | | |
| PC S & P | .016 | .055 | -.041 | --- | | |
| Abs. PC | -.070 | -.136 | .145 | -.045 | --- | |
| Hi-Lo | .079 | .025 | .281 | -.174 | .817 | --- |

Annual Data

| | Inst. P & S | T. Stk. Volume | Perc. Inst. Trading | PC S & P | Abs. PC | Hi-Lo |
|---|---|---|---|---|---|---|
| Inst. P & S | --- | | | | | |
| T. Stk. Volume | .915 | --- | | | | |
| Perc. Inst. Trading | .914 | .707 | --- | | | |
| PC S & P | -.066 | .031 | -.250 | --- | | |
| Abs. PC | -.101 | -.074 | -.104 | -.263 | --- | |
| Hi-Lo | -.041 | -.142 | .206 | -.779 | .433 | --- |

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